Mould Assessment – 4 Needler Lane, Millbrook, Ontario

December 6, 2024

Prepared for:
Township of Cavan-Monaghan

Cambium Reference: 21346-001

CAMBIUM INC.

866.217.7900

cambium-inc.com

Executive Summary

Cambium Inc. (Cambium) was retained by the Township of Cavan-Monaghan (Client) to complete a mould assessment of the building at 4 Needlers Lane, Millbrook, Ontario. The assessment was prompted by the air sampling completed by Cambium in September 2024, which identified elevated mould spores, as compared to sampling completed by Cambium in April 2023. The Client requested additional bulk and air sampling at additional locations throughout the building, to assess whether mould and airborne mould spores were present.

The scope of work for the mould assessment consisted of the following tasks:

- Visual assessment of mould growth, water damage, and/or water intrusion.
- Collection of moisture measurements of building materials.
- Collection and analysis of 21 mould air samples (includes outdoor benchmark air samples).
- Collection and analysis of 17 bulk mould samples.

The survey was performed by Cambium on October 21, 2024, and October 31, 2024.

Key Findings and Recommendations

During the assessment the following findings were evident:

- Significant mould growth was identified on various porous and non-porous materials and surfaces throughout the building including within the mechanical ventilation systems.
- Select mould impacted building materials associated with the building has also been confirmed as asbestos-containing.
- Direct moisture readings collected from gypsum walls in the second-floor hall were found to be damp.
- Elevated airborne mould spore concentrations, including potentially allergenic, toxigenic and pathogenic types were identified throughout the building at the time of testing.
- The source of mould growth identified in the building have likely been caused by a combination of factors including a previous water loss event and roof leaks.

Based on the findings, the following recommendations are made:

R1. Using Environmental Abatement Council of Canada (EACC) Level 3 mould abatement procedures, complete the following:

a. Remove mould impacted gypsum (drywall) finishes, in conjunction with Type 2 asbestos abatement procedures as outlined in Ontario Regulation 278/05, *Designated Substance — Asbestos on Construction Projects and in Buildings and Repair Operations* (O. Reg 278/05).

b. Remove mould impacted acoustic ceiling tiles.

c. Remove mould impacted wood trim.

d. Remove mould impacted fibreglass insulation.

e. Remove mould impacted vapour barrier.

f. Clean and disinfect mould impacted concrete.

g. Clean and disinfect removeable rubber flooring.

h. Clean and disinfect all stored items and surfaces throughout the building.

i. Clean and disinfect all other non-porous and porous surfaces (to the extent practical) throughout all other areas of the building utilizing HEPA sandwich cleaning techniques.

j. Clean and disinfect all supply and return ductwork (including all air handling equipment) throughout the building as outlined in the National Air Duct Cleaners Association (NADCA) standard, 2021 Edition.

k. Following all mould abatement work (as well as cleaning and disinfecting), Cambium recommends completing additional air sampling to gauge effectiveness of remedial efforts and ensure safe levels are archived prior re-occupancy.

R2. Prior to any reinstatement activities, all finishes should be verified as dry, and all sources of moisture intrusion rectified. Cambium recommends retaining a building

envelope specialist to evaluate the cause and source of water infiltration issues associated with the roof of the building.

Complete commentary can be found in the body of this report. The executive summary is not intended to substitute for the complete report, nor does it discuss some of the specific issues documented in the report.

Table of Contents

List of Tables

List of Appendices

1.0 Introduction

Cambium Inc. (Cambium) was retained by the Township of Cavan-Monaghan (Client) to complete a mould assessment of the building at 4 Needlers Lane, Millbrook, Ontario.

The assessment was prompted by the air sampling completed by Cambium in September 2024, which identified elevated mould spores, as compared to sampling completed by Cambium in April 2023. The Client requested additional bulk and air sampling at additional locations throughout the building, to assess whether mould and airborne mould spores were present.

The scope of work for the mould assessment consisted of the following tasks:

- Visual assessment of mould growth, water damage, and/or water intrusion.
- Collection of moisture measurements of building materials.
- Collection and analysis of 21 non-viable air samples (includes outdoor benchmark air samples).
- Collection and analysis of 17 bulk mould samples.

The survey was performed by Cambium on October 21, 2024, and October 31, 2024.

1.1 Background

The sources of mould growth identified in the building is understood to likely been caused by a combination of factors including a previous water loss event and roof leaks.

Prior to the site visit, Cambium reviewed and referred to the following reports entitled:

- “Mould Air Sampling – 4 Needlers Lane, Millbrook, Ontario”, dated September 13, 2024. Note that mould spore concentrations in the main floor lobby area were identified to be slightly elevated in comparison to the exterior reference sample.
- “Designated Substances Survey (DSS) – 4 Needlers Lane, Millbrook, Ontario”, dated April 18, 2023. Note that mould spore concentrations in the building were identified to be similar and/or lower in comparison to the exterior reference sample.

- As outlined in the DSS report, drywall joint compound (applied to gypsum finishes) was identified to be asbestos-containing.

2.0 Factors Related to Mould

Fungi are primitive plants that lack chlorophyll and therefore feed as parasites or feed on organic matter that they digest externally and absorb. The true fungi include yeast, mould, mildew, ‘rust’, smut, and mushrooms. Fungi are found on plants, foods, dry leaves, and other organic materials. They provide an important function in nature by breaking down dead organic matter such as fallen leaves and trees.

The conditions required for mould growth are the presence of moisture, a suitable temperature range, and a food source. Many indoor building materials, such as paper and paper products, cardboard, ceiling tiles, and wood and wood products are excellent nutrient sources for moulds. Other materials that support mould growth include dust, paints, wallpaper, insulation, drywall, carpet (especially jute backing), draperies, and upholstery. Most buildings have favourable indoor conditions; therefore, moulds are commonly encountered in indoor environments.

In most non-contaminated buildings, exposure to mould is not expected to present a health hazard except to specifically susceptible people such as persons that have a mould allergy or with a compromised immunity. Reactions to moulds are varied and depend upon several factors. Human factors include personal susceptibility, route of exposure, age, and state of health. Mould related factors include amount and length of time of exposure, virility and viability of the organism, and whether the effect is infection, allergenic, toxigenic, or a combination.

3.0 Methodology

3.1 Guidelines

There are no specific regulations in Ontario (or anywhere across Canada) with respect to mould assessment and remediation; however, Health Canada states once identified, mould should be remediated as soon as possible.

The following guidelines were reviewed and drawn from for the purpose of this assessment and sampling.

- The Environmental Abatement Council of Canada (EACC) –*"Mould Abatement Guideline".*
- Canadian Construction Association (CCA) – "*Mould Guidelines for the Canadian Construction Industry*" (CCA), 2018.
- American Industrial Hygiene Association (AIHA) – "*Field Guide for The Determination of Biological Contaminants in Environmental Samples*".
- Institute for Inspection, Cleaning and Restoration (IICRC) – "*Standard for Professional Mould Remediation"* (IICRC S520) Edition 3, 2015.
- Health Canada – "*Fungal Contamination in Public Buildings: Health Effects and Investigation Methods*".

3.2 Visual Assessment

The purpose was to visually observe suspected mould growth that may be present in the building. The visual assessment was completed in accordance with American Industrial Hygiene Association (AIHA) – "*Field Guide for The Determination of Biological Contaminants in Environmental Samples"* as well as other consideration to the other guidelines listed above.

The visual assessment consisted of a walkthrough of the building to identify water damaged building materials, suspected mould growth, and/or suspected sources of water intrusion.

3.3 Moisture Measurements

Moisture content readings were collected from porous building materials in the areas. Moisture content readings were collected using a GE Surveymaster Protimeter Dual-Function Moisture

Meter. The meter expresses moisture content of wood as a percent (%) and all other porous building materials as a percent Wood Moisture Equivalent (%WME). All porous building materials with a moisture content reading greater than 18 % or 18 %WME were deemed “water damaged”.

3.4 Air Sampling

Air samples were collected in order to determine the types and relative concentrations of fungal spores in various locations of the building at the time of the assessment. The air samples were collected using a Zefon Bio-Pump air-sampling pump with Air-O-Cell® media cassettes. The sampler operates on the principle of impaction whereby airborne microorganisms are impacted onto a media cassette. The Air-O-Cell® cassettes collect both viable and non-viable mould spores, providing a more accurate spore count. The cassettes were analysed by spore trap analysis. The analysis includes the identification to genus or group of all fungal spores present, including the quantification to spores per cubic meter of air. The samples were collected at a flow rate of approximately 15 litres per minute for a sampling duration of five minutes for a desired volume for 75 litres of air.

There are currently no regulations or exposure values promulgated for exposure to surface or airborne quantities of fungi; however, there are several guidelines that have been developed throughout North America.

The general approach to the interpretation of the analysis results is to compare the indoor concentrations to outdoor concentrations. The approach relies on the assumption that an indoor environment free of mould growth will have similar types and relative concentrations of mould spores as the outdoor environment.

The laboratory certificate of analysis is included in Appendix B.

3.5 Bulk Sampling

17 mould bulk samples were collected in order to confirm the presence or absence of where suspect mould growth was observed. Where mould growth is confirmed, the analytical results of the samples will identify the types of fungal spores present on a particular building material.

The laboratory certificate of analysis is included in Appendix B.

3.6 Analysis

All samples were sent to EMC Scientific Inc. (EMC) for analysis by direct microscopic examination. EMC, located in Mississauga, Ontario, is an environmental microbiology laboratory that participates in the American Industrial Hygiene Association (AIHA) Environmental Microbiology Proficiency Analytical Testing (EMPAT) Program.

4.0 Results and Findings

The following sections provide a summary of the results and findings of the mould assessment. Photographs of materials affected by water damage and/or mould growth are included in Appendix A.

4.1 Visual Observations

4.1.1 Second Floor

The following table outlines the locations, quantities of mould growth and bulk mould sampling locations (when collected for laboratory analysis) identified on the second floor.

Table 1 Observations and Sampling Locations on Second Floor

Location	Material	Moisture Content Readings (%)	Mould Growth Identified	Sample ID	Quantity of Visible/ Accessible Mould (Square Feet (ft^2))
2nd Floor Main Room	Gypsum (wall) (Photo 3)	Damp (17%)	*Stachybotrys* (Abundant) *Ulocladium* (Abundant)	MLD-117	6 ft^2
	Wood Baseboards (Photo 13)	Dry (NR to 10%)	*Trichoderma* (Abundant) *Aspergillus* (Abundant) *Cladosporium* (Abundant)	MLD-115	5 ft^2
	Acoustic Ceiling Tiles (Photo 7)	Dry (NR)	*Stachybotrys* (Moderate to Abundant)	MLD-104	5 ft^2
	Fibreglass Insulation (ceiling) (Photo 8 & 9)	N/A	Fungal Hyphae (Sparse) *Cladosporium* (Sparse)	MLD-101	6,000 ft^2
	Ceiling Vapour Barrier (ceiling) (Photo 6)	N/A	Fungal Hyphae (Sparse) *Cladosporium* (Sparse)	MLD-102	6,000 ft^2
	Air Duct (interior)	N/A	*Cladosporium* (Sparse)	MLD-105	500 ft^2

Location	Material	Moisture Content Readings (%)	Mould Growth Identified	Sample ID	Quantity of Visible/ Accessible Mould (Square Feet (ft^2))
			Penicillium (Sparse) *Alternaria* (Sparse)		
	Wood Wall Panel (Photo 3)	Dry (NR)	Fungal Hyphae (Sparse)	MLD-103	4 ft^2
Washrooms	Gypsum (wall) (Photo 5)	Damp (19%)	*Aspergillus* (Abundant)	MLD-116	15 ft^2
	Baseboard	N/A	Suspect Mould Growth	N/A	8 ft^2

4.1.2 Main Arena

The following table outlines the locations and quantities of mould growth identified in the main arena.

Table 2 Observations and Sampling Locations in the Main Arena

Location	Material	Moisture Content Readings (%)	Mould Growth Identified	Sample ID	Quantity of Visible/ Accessible Mould (Square Feet (ft^2))
Main Arena	Fibreglass Insulation (ceiling and walls) (Photo 11)	N/A	Suspect Mould Growth	N/A	25,000 ft^2
	Vapour Barrier (ceiling) (Photo 11)	N/A	Suspect Mould Growth	N/A	15,000 ft^2
	Concrete Wall (Photo 1 & 10)	N/A	Suspect Mould Growth	N/A	60 ft^2

4.1.3 Changerooms

The following table outlines the locations, quantities of mould growth and bulk/tape lift mould sampling locations (when collected for laboratory analysis) identified in the changerooms.

Table 3 Observations and Sampling Locations in the Changerooms

Location	Material	Moisture Content Readings (%)	Mould Growth Identified	Sample ID	Quantity of Visible/ Accessible Mould (Square Feet (ft^2))
Changeroom 4	Gypsum (ceiling) (Photo 14)	Dry (NR to 10%)	Fungal Hyphae (Sparse) *Aspergillus/Penicillium* (Sparse) *Cladosporium* (Sparse)	MLD-108	1,000 ft^2
	Concrete Block (wall, inside wall hatch)	N/A	Suspect Mould Growth	N/A	8 ft^2
Small Changeroom	Gypsum (ceiling) (Photo 4)	Dry (NR to 10%)	Fungal Hyphae (Sparse) *Aspergillus/Penicillium* (Sparse) *Cladosporium* (Sparse)	MLD-110	250 ft^2
Changeroom 3	Gypsum (ceiling) (Photo 15)	Dry (NR to 10%)	Fungal Hyphae (Sparse) *Cladosporium* (Sparse) *Ascospores* (Sparse)	MLD-111	1,000 ft^2
Changeroom 2	Gypsum (ceiling)	Dry (NR to 10%)	Suspect Mould Growth	N/A	1,000 ft^2
Changeroom 1	Gypsum (ceiling)	Dry (NR to 10%)	Suspect Mould Growth	N/A	1,000 ft^2
Referee Changeroom	Gypsum (ceiling)	Dry (NR to 10%)	Suspect Mould Growth	N/A	250 ft^2

A tape-lift sample was collected from inside the air duct in Changeroom 2 and no mould growth was identified (MLD-106).

4.1.4 Main Lobby

The following table outlines the locations, quantities of mould growth and bulk/tape lift mould sampling locations (when collected for laboratory analysis) identified in the main lobby and adjacent rooms.

Table 4 Observations and Sampling Locations in the Main Lobby and Adjacent Rooms

Location	Material	Moisture Content Readings (%)	Mould Growth Identified	Sample ID	Quantity of Visible/Accessible Mould (Square Feet (ft^2))
Women's Washroom, Main Floor	Concrete (wall)	N/A	Fungal Hyphae (Sparse) *Cladosporium* (Sparse)	MLD-107	15 ft^2
Main Floor Lobby	Gypsum (wall and ceiling) (Photo 2 &12)	Dry (NR to 10%)	*Cladosporium* (Moderate)	MLD-109	2,700 ft^2
Lobby Viewing Area	Gypsum (wall and ceiling)	Dry (NR to 10%)	*Ulocladium* (Moderate) *Chaetomium* (Moderate)	MLD-112	1,000 ft^2
	Wood (wall)	Dry (NR to 10%)	*Ulocladium* (Sparse to Moderate) *Cladosporium* (Sparse to Moderate)	MLD-114	15 ft^2
Mechanical room	Gypsum (ceiling)	Dry (NR to 10%)	Suspect Mould Growth	N/A	10 ft^2
Canteen	Gypsum (ceiling) (Photo 16)	Dry (NR to 10%)	Suspect Mould Growth	N/A	250 ft^2
Office	Gypsum (ceiling)	Dry (NR to 10%)	Suspect Mould Growth	N/A	250 ft^2

Black staining was observed on the concrete floor beneath rubber flooring. A bulk sample was collected from the concrete and no mould growth was identified (sample MLD-113).

4.2 Spore Trap Air Sample Results

The following table outlines the results of airborne mould spore concentrations sampled for throughout the building.

Table 5 Results of Airborne Mould Spore Concentrations

Location	Non-Viable Air Sample Number	Elevated Fungal Spore Species
Arena Office	AS-101	**Aspergillus/Penicillium*
Main Lobby	AS-102	**Aspergillus/Penicillium* ***Stachybotrys*
Changeroom 1	AS-103	**Aspergillus/Penicillium*
Changeroom 2	AS-104	**Aspergillus/Penicillium*
Woman's Washroom	AS-105	**Aspergillus/Penicillium*
Canteen	AS-106	**Aspergillus/Penicillium*
Men's Washroom	AS-107	***Stachybotrys*
Small Changeroom	AS-108	**Aspergillus/Penicillium* ***Stachybotrys*
Changeroom 3	AS-109	**Aspergillus/Penicillium* ***Stachybotrys*
Changeroom 4	AS-110	**Aspergillus/Penicillium* ***Stachybotrys*
Referee Changeroom	AS-111	**Aspergillus/Penicillium* ***Stachybotrys*
East End of Main Arena	AS-112	**Aspergillus/Penicillium*
West End of Main Arena	AS-113	**Aspergillus/Penicillium*
Spector Viewing Area	AS-114	**Aspergillus/Penicillium*
Ammonia Room	AS-115	**Aspergillus/Penicillium*
Zamboni Room	AS-116	**Aspergillus/Penicillium*
Second Floor Hall	AS-117	**Aspergillus/Penicillium* ***Stachybotrys*
Second Floor Woman's Washroom	AS-118	**Aspergillus/Penicillium* ***Stachybotrys*
Second Floor Men's Washroom	AS-119	**Aspergillus/Penicillium* ***Stachybotrys*

** Aspergillus/Penicillium fungal spore concentrations were determined to be elevated throughout the building in comparison to the exterior reference samples. Although commonly found in indoor environments, some species of the fungal genera Aspergillus/Penicillium are known to be toxigenic or allergenic.*

***Stachybotrys fungal spore concentrations were determined to be elevated in eight locations throughout the building. Stachybotrys is known to be hazardous to human health and typically encountered in areas with water damaged materials. Comparatively, indoor concentrations are typically lower than concentrations in the outdoor environment, but it is a significant airborne toxin and a common agent for symptoms of dermatitis, inflammation of the mucous membranes, respiratory issues, fever, headache, and fatigue. The spore type can thrive in various indoor environments, appearing dark green to black.*

4.3 Discussion and Conclusions

4.3.1 Mould Air Sampling Discussion

Criteria for interpreting mould sampling results can be drawn from various guidelines, reference documents and research publications. Although numerical guidelines and recommendations have been published, criteria vary in orders of magnitude and thus no consensus or health-based guidelines exist. When interpreting airborne mould data, a combination of relevant publications outlined in Section 3.1, industry standards, expert opinion, logic and common sense are relied upon. Based on this rationale and limitations of available criteria, Cambium has determined that the following criterion with respect to the air quality findings must be considered in our conclusions.

Table 6 Air Quality Criterion to be Satisfied

Criterion	All Samples Satisfy This Criterion	All Samples Do Not Satisfy this Criterion
Significant numbers of certain pathogenic fungi should not be present in indoor air at levels greater than normally found outdoors.		X
The persistent presence of significant numbers of toxigenic fungi (e.g., *Stachybotrys*, *Aspergillus/Penicillium* species).		X
The confirmed presence of one or more fungal species occurring as a significant percentage of a sample in indoor air samples that not similarly present in typical outdoor air samples is evidence of a fungal amplifier.		X
The "normal" air mycoflora is qualitatively similar and quantitatively lower than that of typical outdoor air.		X

4.3.2 Bulk Mould Air Sampling Discussion

Suspected mould growth was sampled for and confirmed via laboratory interpretation of the results of the bulk samples collected from wood, concrete, gypsum, fibreglass insulation, vapour barrier, and acoustic ceiling tiles in various locations throughout the building.

4.3.3 Conclusions

Based on what has been provided in this report and our professional knowledge related to assessments of this type, Cambium concludes the following:

1. The source of mould growth identified in the changerooms, lobby, and adjacent rooms was likely caused by a previous water loss event.
2. The source of mould growth identified in the main arena space and the second floor was likely caused by roof leaks.
3. Based on elevated airborne mould spore concentrations identified in the building, airborne mould spores are presumed to be present within ductwork and air handling equipment throughout the building.
4. When comparing the indoor air concentrations identified on October 21, 2024; to the outdoor reference samples, it is likely that the observed quantity of *Stachybotrys and Aspergillus/Penicillium* spores within the building would have an effect on occupants, especially those considered at greater risk of experiencing adverse health effects such as infants, children, seniors, pregnant people and those with respiratory conditions such as asthma.
    a. More recently, there is increased recognition that exposure to indoor mould and dampness may contribute to the development of asthma, bronchitis and other respiratory infections, as well as eczema.
    b. The level of risk depends on the extent of mould growth itself (regardless of species and its toxicity), how long mould has been present along with the susceptibility and overall health of exposed individuals. As noted above, some people are more susceptible to the impact of mould and are considered to be at greater risk of experiencing adverse health effects from mould exposure.

5.0 Recommendations

Based on the findings of the assessment, the following recommendations are made:

1. The building owner should consider implementation of risk management actions to prevent potential exposure and adverse health effects to individuals accessing the facility. Based on the laboratory results and findings of potentially allergenic, toxigenic or pathogenic mould, risk to general occupants and workers is high. Risk management for the client can include isolating the building from occupants (general public and staff) until successful remedial measures can occur. The use of respiratory protection (suitable for mould) should be considered for at risk individuals who must enter the facility.
2. Conduct mould remediation following mould procedures as outlined in the Environmental Abatement Council of Canada (EACC) guideline entitled "*Mould Abatement Guidelines, Edition 3".* Using EACC Level 3 mould abatement procedures, complete the following:
    a. Remove mould impacted gypsum (drywall) finishes, in conjunction with Type 2 asbestos abatement procedures as outlined in O. Reg 278/05.
    b. Remove mould impacted acoustic ceiling tiles.
    c. Remove mould impacted wood trim.
    d. Remove mould impacted fibreglass insulation.
    e. Remove mould impacted vapour barrier.
    f. Clean and disinfect mould impacted concrete.
    g. Clean and disinfect removeable rubber flooring.
    h. Clean and disinfect all stored items and surfaces throughout the building.
    i. Clean and disinfect all other non-porous and porous surfaces (to the extent practical) throughout all other areas of the building utilizing HEPA sandwich cleaning techniques.
    j. Clean and disinfect all supply and return ductwork (including all air handling equipment) throughout the building as outlined in the National Air Duct Cleaners Association (NADCA) standard, 2021 Edition.

k. Following all mould abatement work (as well as cleaning and disinfecting), Cambium recommends completing additional air sampling to gauge effectiveness of remedial efforts and ensure safe levels are archived prior re-occupancy.

3. Prior to any reinstatement activities, all finishes should be verified as dry, and all sources of moisture intrusion rectified. Cambium recommends retaining a building envelope specialist to evaluate the cause and source of water infiltration issues associated with the roof of the building.

6.0 Mould Assessment Limitations

The information provided in this report with respect to the mould assessment is limited to the specific scope of work and is solely for the exclusive use of the Township of Cavan-Monaghan. Cambium is not responsible for the use of this report by any third party. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

The field observations and analysis are considered sufficient in detail and scope to form a reasonable basis for the findings presented in this report. Cambium warrants that the findings and conclusions contained herein have been made in accordance with generally accepted industry evaluation methods and applicable regulations at the time of the performance of the mould assessment. However, due to the nature of building construction, it is possible that conditions may exist which could not be reasonably identified within the scope of the investigation, or which were not evident during the mould assessment.

Cambium believes that the information collected during the mould assessment is reliable but reserves the right to review and comment on any interpretation of the data or conclusions derived from this report by the Township of Cavan-Monaghan.

7.0 Closing

Cambium trusts that the above meets the requirements of the Township of Cavan-Monaghan. If you have questions or comments regarding the details within this report, please do not hesitate to contact the undersigned at (705) 742-7900.

Respectfully submitted,

Cambium Inc.

DocuSigned by:
10BC5ABA7CC944F...
Chris Moose
Senior Project Manager

Signed by:
Brad Wilson
4108BDC2918E443...
Brad Wilson
Senior Project Manager
DS

LICENSED PROFESSIONAL ENGINEER
S. L. BACHYNSKI
100135636
PROVINCE OF ONTARIO
2024-12-06

DocuSigned by:
BACDB4B07C804EB...
Sadie Bachynski, P.Eng.
Group Manager – Environmental Compliance

P:\21300 to 21399\21346-001 Twnshp-Cvn-Mnghn - BSc - 4 Needlers Lane\Deliverables\Final\2024-12-06 RPT MLD 4 Needlers Lane, Millbrook.docx

8.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

Cambium's services, work and reports may be relied on by the client and its corporate directors and officers, employees, and professional advisors. Cambium is not responsible for the use of its work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Cambium without Cambium's express written consent. Any party that relies on services or work performed by Cambium or a report prepared by Cambium without Cambium's express written consent, does so at its own risk. No report of Cambium may be disclosed or referred to in any public document without Cambium's express prior written consent. Cambium specifically disclaims any liability or responsibility to any such party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of any information, recommendation or other matter arising from the services, work or reports provided by Cambium.

Limitation of Liability

Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.

Appendix A
Photographs

Photo 1 Mould growth on concrete in the main arena area.

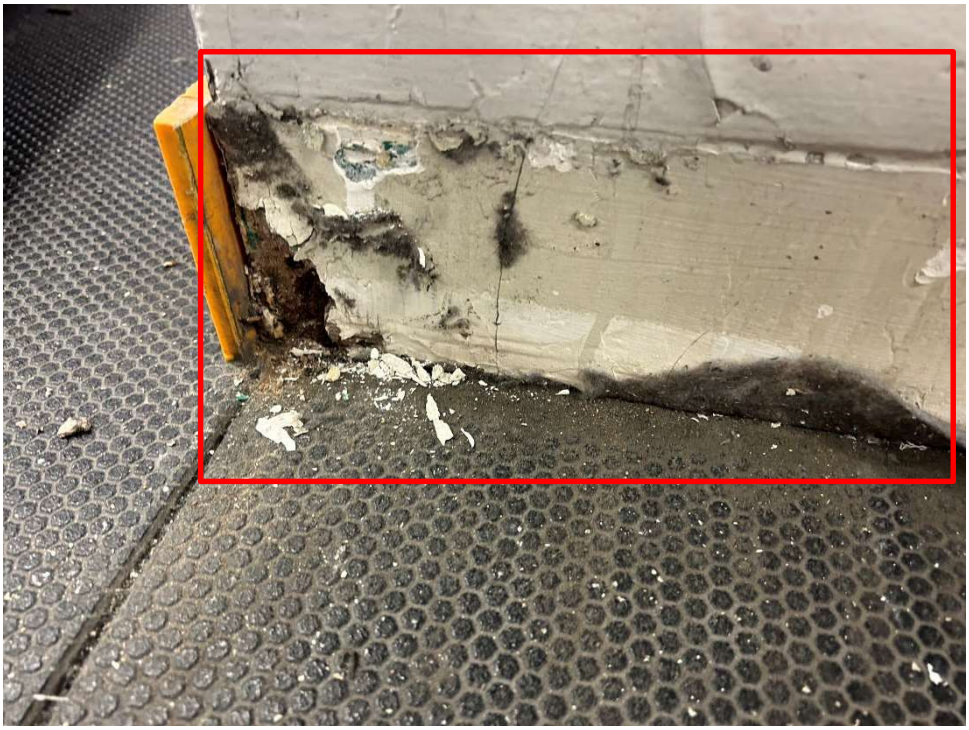

Photo 2 Mould growth on gypsum in the lobby.

Photo 3 Mould growth on gypsum wall and wood baseboard trim in the second floor hall.

Photo 4 Mould growth on gypsum in changeroom 3.

Photo 5 Mould growth on gypsum in the second-floor woman's washroom.

Photo 6 Mould growth on vapour barrier along with water-stained ceiling tiles.

Photo 7 Mould growth on acoustic ceiling tiles.

Photo 8 Mould growth on vapour barrier and fibreglass ceiling insulation.

Photo 9 Mould growth vapour barrier and fibreglass insulation.

Photo 10 Mould growth concrete block wall.

Photo 11 Mould impacted fibreglass insulation.

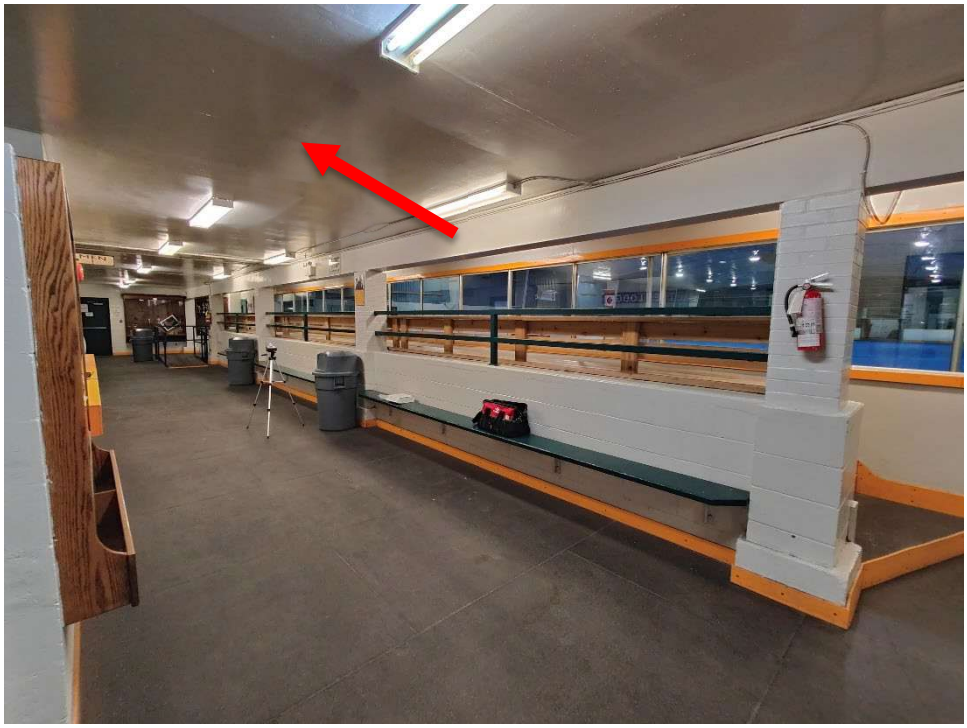

Photo 12 Mould impacted gypsum ceiling.

Photo 13 Mould impacted wooden baseboard.

Photo 14 Mould impacted gypsum ceiling.

Photo 15 Mould impacted gypsum ceiling.

Photo 16 Mould impacted gypsum ceiling.

Appendix B

Laboratory Certificate of Analysis

emcscientific INCORPORATED

Laboratory Analysis Report

To:

William Bellhouse
Cambium Inc.
194 Sophia Street
Peterborough, Ontario
K9H 1E5

EMC LAB REPORT NUMBER: 98425
Job/Project Name: 4 Needlers Lane, Millbrook
Job/Project No: 21346-001 **No. of Samples:** 7
Sample Type: Bulk/Tape **Date Received:** Oct 22/24
Analysis Method(s): Direct Microscopic Examination
Date Analyzed: Oct 25/24 **Date Reported:** Oct 25/24
Analyst: Fajun Chen, Ph.D., *Principal Mycologist*

Client's Sample ID	Lab Sample No.	Date Sampled	Description/Location	Mould Identified, in Rank Order	Mould Growth
MLD-101	416259	Oct 21/24	Fiberglass insulation (second floor attic)	Fungal hyphae *Cladosporium* (a few spores)	Sparse
MLD-102	416260	Oct 21/24	Vapour barrier (second floor attic)	Fungal hyphae *Cladosporium* (a few spores)	Sparse
MLD-103	416261	Oct 21/24	Wood panel (second floor main hall)	Fungal hyphae	Sparse
MLD-104	416262	Oct 21/24	Ceiling tile (second floor main hall)	*Stachybotrys*	Moderate to abundant
MLD-105	416263	Oct 21/24	Duct (second floor main hall)	*Cladosporium* *Penicillium* *Alternaria* (a few spores)	Sparse
MLD-106	416264	Oct 21/24	Duct (changeroom 2)	*Cladosporium* (a few spores) Fungal hyphal fragments (a few) Basidiospores (a few) Ascospores (a few) Rusts (a few spores) Smut-like (a few spores)	None
MLD-107	416265	Oct 21/24	Mold on concrete (women's washroom)	Fungal hyphae *Cladosporium* (a few spores)	Sparse

Note:
1. Mould growth is subjectively assessed with description terms sparse, moderate and abundant.
2. The presence of spores (lacking other fungal structures associated) is assessed as following: a few spores (< 10 spores average per microscopic field at 400X), some spores (10 - 100 spores average per microscopic field at 400X), many spores (> 100 spores average per microscopic field at 400X).
3. The presence of a few spores generally represents settled spores on the surface of the sample rather than indicating mould growth.
4. The results are only related to the samples analyzed.

emcscientific INCORPORATED

Laboratory Analysis Report

To:

William Bellhouse
Cambium Inc.
194 Sophia Street
Peterborough, Ontario
K9H 1E5

EMC LAB REPORT NUMBER: 98424
Job/Project Name: 4 Needlers Lane, Millbrook
Job/Project No: 21346-001 **No. of Samples:** 21
Sample Type: Air-O-Cell **Date Received:** Oct 22/24
Analysis Method(s): Fungal Spore Counting
Date Analyzed: Oct 25/25 **Date Reported:** Oct 25/25
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*
Approved By: Fajun Chen, Ph.D., *Principal Mycologist*

Client's Sample ID	**EXT-101**			**EXT-102**			**AS-101**			**AS-102**			**AS-103**		
EMC Lab Sample No.	416238			416239			416240			416241			416242		
Sampling Date	Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24		
Description/Location	Exterior reference			Exterior reference			Arena office			Main lobby			Changeroom 1		
Air Volume (m^3)	0.075			0.075			0.075			0.075			0.075		
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria	5	1	67	10	2	133	1	1	13	1	3	13			
Arthrinium															
Ascospores	27	4	360	19	4	253	5	7	67	2	5	27	1	3	13
Aspergillus/Penicillium type	5	1	67	7	1	93	11	14	147	8	22	107	6	21	80
Basidiospores	92	14	1227	81	16	1080	8	11	107	7	19	93	3	10	40
Cercospora				1	0	13									
Chaetomium	1	0	13												
Cladosporium	245	38	3267	187	36	2493	29	38	387	7	19	93	9	31	120
Colorless	215	33	2867	180	35	2400	14	18	187	7	19	93	9	31	120
Curvularia															
Drechslera/Bipolaris group															
Epicoccum	2	0	27	3	1	40									
Fusarium															
Nigrospora	2	0	27												
Oidium															
Pithomyces	1	0	13												
Polythrincium	1	0	13												
Rusts	3	0	40	4	1	53				1	3	13	1	3	13
Smuts, *Periconia*, Myxomycetes	44	7	587	22	4	293	8	11	107	1	3	13			
Stachybotrys										3	8	40			
Torula				2	0	27									
Ulocladium															
Unidentified spores															
Number of spores/sample	643			516			76			37			29		
Fungal fragments (0-3 +)	0+			0+			0+			0+			0+		
Non-fungal material (0-3 +)	2+			2+			3+			2+			2+		
TOTAL SPORES/M^3	**8,573**			**6,880**			**1,013**			**493**			**387**		

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.

emcscientific INCORPORATED

Laboratory Analysis Report

EMC LAB REPORT NUMBER: 98424
Client's Job/Project No.: 21346-001
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*

Client's Sample ID	**AS-104**			**AS-105**			**AS-106**			**AS-107**			**AS-108**		
EMC Lab Sample No.	416243			416244			416245			416246			416247		
Sampling Date	Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24		
Description/Location	Changeroom 2			Woman's washroom			Canteen			Men's washroom			Changeroom small		
Air Volume (m^3)	0.075			0.075			0.075			0.075			0.075		
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria	2	4	27												
Arthrinium															
Ascospores	3	6	40	6	8	80	4	7	53	3	9	40	7	2	93
Aspergillus/Penicillium type	9	18	120	12	16	160	18	30	240	5	14	67	320	89	4267
Basidiospores	5	10	67	17	23	227	7	12	93	5	14	67	6	2	80
Cercospora				1	1	13									
Chaetomium															
Cladosporium	23	45	307	19	26	253	22	37	293	9	26	120	13	4	173
Colorless	7	14	93	13	18	173	8	13	107	12	34	160	8	2	107
Curvularia													1		
Drechslera/Bipolaris group															
Epicoccum	1	2	13				1	2	13						
Fusarium															
Nigrospora															
Oidium															
Pithomyces				1	1	13									
Polythrincium															
Rusts				1	1	13									
Smuts, *Periconia*, Myxomycetes	1	2	13	3	4	40									
Stachybotrys										1	3	13	6	2	80
Torula															
Ulocladium															
Unidentified spores															
Number of spores/sample	51			73			60			35			361		
Fungal fragments (0-3 +)	0+			0+			0+			0+			0+		
Non-fungal material (0-3 +)	2+			2+			2+			2+			2+		
TOTAL SPORES/M^3	**680**			**973**			**800**			**467**			**4,813**		

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.

emcscientific INCORPORATED

Laboratory Analysis Report

EMC LAB REPORT NUMBER: 98424
Client's Job/Project No.: 21346-001
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*

Client's Sample ID	**AS-109**			**AS-110**			**AS-111**			**AS-112**			**AS-113**		
EMC Lab Sample No.	416248			416249			416250			416251			416252		
Sampling Date	Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24		
Description/Location	Changeroom 3			Changeroom 4			Rest changeroom			Arena			Arena		
Air Volume (m^3)	0.075			0.075			0.075			0.075			0.075		
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria															
Arthrinium															
Ascospores	7	5	93	3	5	40	6	7	80	4	6	53	4	8	53
Aspergillus/Penicillium type	84	63	1120	32	52	427	25	30	333	23	35	307	13	27	173
Basidiospores	9	7	120	4	7	53	9	11	120	6	9	80	5	10	67
Cercospora															
Chaetomium															
Cladosporium	12	9	160	10	16	133	31	37	413	25	38	333	17	35	227
Colorless	18	14	240	11	18	147	7	8	93	5	8	67	8	16	107
Curvularia															
Drechslera/Bipolaris group															
Epicoccum															
Fusarium															
Nigrospora															
Oidium															
Pithomyces													1	2	13
Polythrincium															
Rusts													1	2	13
Smuts, *Periconia*, Myxomycetes							2	2	27	2	3	27			
Stachybotrys	3	2	40	1	2	13	4	5	53						
Torula															
Ulocladium															
Unidentified spores															
Number of spores/sample	133			61			84			65			49		
Fungal fragments (0-3 +)	0+			0+			0+			0+			0+		
Non-fungal material (0-3 +)	2+			2+			3+			3+			2+		
TOTAL SPORES/M^3	**1,773**			**813**			**1,120**			**867**			**653**		

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.

emcscientific INCORPORATED

Laboratory Analysis Report

EMC LAB REPORT NUMBER: 98424
Client's Job/Project No.: 21346-001
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*

Client's Sample ID	**AS-114**			**AS-115**			**AS-116**			**AS-117**			**AS-118**		
EMC Lab Sample No.	416253			416254			416255			416256			416257		
Sampling Date	Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24			Oct 21/24		
Description/Location	Arena stands			Ammonia room			Zamboni room			Main hall (second floor)			Women's washroom (second floor)		
Air Volume (m^3)	0.075			0.075			0.075			0.075			0.075		
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria										3	2	40			
Arthrinium															
Ascospores	5	2	67	9	8	120	4	2	53	4	3	53	7	2	93
Aspergillus/Penicillium type	27	12	360	17	14	227	38	22	507	31	25	413	350	84	4667
Basidiospores	8	4	107	16	13	213	23	13	307	9	7	120	14	3	187
Cercospora															
Chaetomium															
Cladosporium	168	76	2240	53	45	707	82	47	1093	58	46	773	32	8	427
Colorless	12	5	160	22	18	293	26	15	347	14	11	187	11	3	147
Curvularia															
Drechslera/Bipolaris group															
Epicoccum							1	1	13	1	1	13			
Fusarium															
Nigrospora															
Oidium															
Pithomyces				1	1	13									
Polythrincium															
Rusts	1	0	13				1	1	13						
Smuts, *Periconia*, Myxomycetes	1	0	13	1	1	13				2	2	27			
Stachybotrys										3	2	40	4	1	53
Torula															
Ulocladium															
Unidentified spores															
Number of spores/sample	222			119			175			125			418		
Fungal fragments (0-3 +)	0+			0+			0+			0+			0+		
Non-fungal material (0-3 +)	2+			2+			2+			3+			2+		
TOTAL SPORES/M^3	**2,960**			**1,587**			**2,333**			**1,667**			**5,573**		

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.

emcscientific INCORPORATED

Laboratory Analysis Report

EMC LAB REPORT NUMBER: 98424
Client's Job/Project No.: 21346-001
Analyst: Anupama Chauhan, M.Sc., *Microbiologist*

Client's Sample ID	**AS-119**														
EMC Lab Sample No.	416258														
Sampling Date	Oct 21/24														
Description/Location	Men's washroom (second floor)														
Air Volume (m^3)	0.075														
Fungal Spores	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3	raw ct.	%	spores/m^3
Alternaria															
Arthrinium															
Ascospores	11	8	147												
Aspergillus/Penicillium type	48	34	640												
Basidiospores	18	13	240												
Cercospora															
Chaetomium															
Cladosporium	35	24	467												
Colorless	18	13	240												
Curvularia															
Drechslera/Bipolaris group															
Epicoccum	1	1	13												
Fusarium															
Nigrospora															
Oidium															
Pithomyces															
Polythrincium															
Rusts															
Smuts, *Periconia*, Myxomycetes	1	1	13												
Stachybotrys	11	8	147												
Torula															
Ulocladium															
Unidentified spores															
Number of spores/sample	143														
Fungal fragments (0-3 +)	0+														
Non-fungal material (0-3 +)	3+														
TOTAL SPORES/M^3	**1,907**														

Note:
1. *Aspergillus/Penicillium* type spores may include those of *Acremonium, Paecilomyces, Trichoderma* and others.
2. A scale of 0 + to 3 + (indicating increasing amount) is used to rate abundance of fungal fragments and non-fungal material, with 3+ indicating the most abundance.
3. The presence of a large amount of dust debris may obscure some spores to be counted. Spore counts from samples with 3 + non-fungal material and/or 3 + fungal material may be treated as under-counts.
4. Unidentified spores are those lacking distinguishable characteristics for correct identification. Colorless are colorless spores lacking distinguishable characteristics.
5. These results are only related to the sample(s) analyzed.

emcscientific
INCORPORATED

Laboratory Analysis Report

To:

Liam Wynne
Cambium Inc.
194 Sophia Street
Peterborough, Ontario
K9H 1E5

EMC LAB REPORT NUMBER: 98656
Job/Project Name: 4 Needlers
Job/Project No: 21346-001 **No. of Samples:** 10
Sample Type: Bulk **Date Received:** Nov 4/24
Analysis Method(s): Direct Microscopic Examination
Date Analyzed: Nov 7/24 **Date Reported:** Nov 8/24
Analyst: Fajun Chen, Ph.D., *Principal Mycologist*

Client's Sample ID	Lab Sample No.	Date Sampled	Description/Location	Mould Identified, in Rank Order	Mould Growth
MLD-108	417121	Oct 31/24	Mould on gypsum / changeroom 4	Fungal hyphae *Aspergillus/Penicillium* (a few spores) *Cladosporium* (a few spores)	Sparse
MLD-109	417122	Oct 31/24	Mould on gypsum / lobby	*Cladosporium*	Moderate
MLD-110	417123	Oct 31/24	Mould on gypsum / small changeroom	Fungal hyphae *Aspergillus/Penicillium* (a few spores) *Cladosporium* (a few spores)	Sparse
MLD-111	417124	Oct 31/24	Mould on gypsum / changeroom 3	Fungal hyphae *Cladosporium* (a few spores) Ascospores (a few)	Sparse
MLD-112	417125	Oct 31/24	Mould on gypsum / lobby viewing area	*Ulocladium* *Chaetomium*	Moderate
MLD-113	417126	Oct 31/24	Mould on concrete / lobby	*Chaetomium* (a few spores) *Cladosporium* (a few spores)	None
MLD-114	417127	Oct 31/24	Mould on wood / lobby	*Ulocladium* *Cladosporium*	Sparse to moderate
MLD-115	417128	Oct 31/24	Mould on wood / second floor	*Trichoderma* *Aspergillus* *Cladosporium*	Abundant
MLD-116	417129	Oct 31/24	Mould on gypsum / second floor	*Aspergillus*	Abundant
MLD-117	417130	Oct 31/24	Mould on gypsum / second floor	*Stachybotrys* *Ulocladium*	Abundant

Note:
1. Mould growth is subjectively assessed with description terms sparse, moderate and abundant.
2. The presence of spores (lacking other fungal structures associated) is assessed as following: a few spores (< 10 spores average per microscopic field at 400X), some spores (10 - 100 spores average per microscopic field at 400X), many spores (> 100 spores average per microscopic field at 400X).
3. The presence of a few spores generally represents settled spores on the surface of the sample rather than indicating mould growth.
4. The results are only related to the samples analyzed.